STARS ACADEMY LAHORE

MULTAN CAMPUS

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STARS ENTRY TEST SYSTEM-2019

MDCAT (CRASH PROGRAM)

Test Code: CRASH 09 **Time Allowed: 150 mins**

BIOLOGY

1. **Sap ascends in woody plants because of the root pressure and**
A) Transpiration pull C) Molecular adhesion
B) Capillarity D) Photosynthesis

2. **Xylem is associated with the translocation of**
A) Water C) Mineral
B) Some organic nitrogen and hormone D) All of these

3. **The most widely accepted explanation for the ascent of sap in tree is**
A) Capillarity C) Pulsating action of living cells
B) Roll of atmospheric pressure D) Transpiration cohesion theory of Dixon

4. **Pulmonary circulation is required for**
A) Nutrient supply to lungs
B) Elimination of waste products from the lungs
C) Oxygenation of deoxygenated blood
D) Nutrient supply to heart

5. **In a hot summer day, a plant cools itself due to**
A) Loss of water vapours from leaf C) Loss of liquid water
B) Transport of water in plant D) Loss of water from entire plant

6. **Blood pressure in the mammalian aorta is maximum during:**
A) Systole of the left atrium C) Systole of the left ventricle
B) Diastole of the right ventricle D) Diastole of the right atrium

7. **Which one of the following is correct?**
A) Plasma = Blood – Lymphocytes C) Lymph = Plasma + RBC + WBC
B) Serum = Blood + Fibrinogen D) Blood = Plasma + RBC + WBC + Platelets

8. **The second heart sound (dub) is associated with the closure of**
A) Tricuspid valve C) Bicuspid valve
B) Semilunar valves D) Tricuspid and bicuspid valves

9. **Which of the following correctly explains a phase / event in cardiac cycle in a standard electrocardiogram?**
A) The QRS complex indicates atrial contraction.
B) The QRS complex indicates ventricular contraction.
C) The time between S and T represents atrial systole
D) The P – wave indicates the beginning of ventricular contraction.

10. **Arteries are best defined as the vessels which:**
A) Carry blood away from the heart to different organs.
B) Break up into capillaries which reunite to form a vein.
C) Carry blood from one visceral organ to another visceral organ.
D) Supply oxygenated blood to different organs.

11. **Name the blood cells, whose reduction in number can cause clotting disorder, leading to excessive loss of blood from the body.**
A) Leucocytes B) Neutrophils C) Thrombocytes D) Erythrocytes

12. **Serum differs from blood in**
A) Lacking albumins C) Lacking antibodies
B) Lacking clotting factors D) Lacking globulins

13. **Which of the following cells does not exhibit phagocytic activity?**
A) Monocytes B) Neutrophil C) Basophil D) Macrophage

14. **Which one of the following type of cells lacks nucleus?**
A) RBC B) Neutrophils C) Eosinophils D) Monocytes

15. **Find the correct descending order to the percentage proportion of leucocytes in human blood.**
A) Neutrophils → Basophils → Lymphocytes → Eosinophils → Monocytes
B) Neutrophils → Monocytes → Lymphocytes → Eosinophils → Basophils
C) Neutrophils → Lymphocytes → Monocytes → Eosinophils → Basophils
D) Neutrophils → Eosinophils → Basophils → Lymphocytes → Monocytes

16. **SA node is called the pace maker of the heart. Why?**
A) It can change contractile activity generated by AV node.
B) It delays the transmission of impulse between the atria and ventricles.
C) It gets stimulated when it receives neural signal.
D) It initiates and maintains the rhythmic contractile activity of heart.

17. **Lymph**
A) Transports oxygen to brain C) Returns interstitial fluid to blood
B) Transports CO_2 to lungs D) Returns RBCs and WBCs to lymph nodes

18. **Shape of RBC in mammal is**
A) Oval B) Biconvex C) Biconcave D) Flattened

19. **The true statement about RBC is**
A) RBCs have an average life span of 120 days.
B) RBCs are destroyed in the spleen (graveyard of RBCs).
C) RBCs are devoid of nucleus in most of the mammals.
D) All the above

20. **Which of the following is associated with allergic reactions?**
A) Neutrophils B) Monocytes C) Eosinophils D) Lymphocyte

21. **Which of the following is an incorrect statement about leucocytes?**
A) They are nucleated.
B) They are approximately in an average of 7000 – 8000 mm^{-3} of blood cells in numbers.
C) Two main types are found they are granulocytes and a granulocytes.
D) Monocytes are most abundant WBCs.

22. **Which of the following is an adaptation to reduce water loss?**
A) Presence of thick cuticle C) Change of leaf into spine
B) Change of leaf into shoot D) All of these

23. **Electrocardiogram is a measure of**
A) Heart rate B) Ventricular contraction C) Volume of blood pumped D)Electrical activity of heart

24. **Which of the following statement is incorrect?**
A) Cardiac output of an athlete is much higher than that of an ordinary man.
B) In each minute a single cardiac cycle is performed.
C) During each cardiac cycle two prominent sounds are produced.
D) Cardiac cycle includes atrial systole, ventricular systole and joint diastole.

25. **Pick up the correct sequence of tissues found in the wall of artery:**
A) Connective tissue → circular smooth muscles → elastic layer → endothelium
B) Connective tissue → elastic layer → endothelium → circular smooth muscles
C) Connective tissue → endothelium → elastic layer → circular smooth muscles
D) Circular smooth muscles → connective tissue → endothelium → elastic layer

26. **In a normally healthy adult man, the systolic and diastolic blood pressures are:**
A) 120 and 80 mm Hg B) 80 and 120 mm Hg C) 70 and 120 mm Hg D) 50 and 50 mm Hg

27. **Which of the following is called necessary evil?**
A) Osmosis B) Transpiration C) Absorption D) Photosynthesis

28. **The rate of transpiration in plants is dependent upon**
A) Temperature and soil
B) Wind, temperature and light
C) Light and temperature
D) Light, temperature, atmospheric humidity and wind

29. **Translocation of organic materials is best explained by:**
A) Imbibition theory C) Active transport
B) Pressure flow hypothesis D) Transpiration pull

30. **Dubb sound by heart is made due to:**
A) Closing of A V valves C) Closing of semilunar valves
B) Opening of AV valves D) Opening of semilunar valves

31. **The correct pathway of passage of lymph is:**

A) Interstitial fluid > lymph vessel > lymph capillaries > lymph node
B) Interstitial fluid > lymph node > lymph vessel > lymph capillaries
C) Interstitial fluid > lymph capillaries > lymph node > lymph vessels
D) Interstitial fluid > lymph vessel > lymph node > lymph capillaries

32. Maintenance of the colloid osmotic pressure of the blood is mainly carried out by a plasma protein called:
A) Albumin B) Globulin C) Fibrin D) Fibrinogen

33. Lymph node is drained by:
A) Many efferent lymph vessels C) Single efferent lymph vessels
B) Many afferent lymph vessels D) Single afferent lymph vessels

34. Deposition of hard yellow plaque of lipoid material in the innermost layer of the arteries is called:
A) Atheroma B) Embolus C) Thrombus D) Sclerosis

35. There is a delay of approximately _______ second in conductance from S. A node to A-V node:
A) 0.8 B) 0.15 C) 2.5 D) 0.3

36. The force that keeps the blood flowing from the heart to all the capillary network in the body is called:
A) Blood pressure B) Atrial systole C) Atrial diastole D) Ventricular diastole

37. Water will be absorbed by root hairs when
A) Concentration of solutes in the cell sap is high
B) Plant is rapidly respiring
C) They are separated from soil by a permeable membrane
D) Concentration of salts in the soil is high

38. The path of water from soil up to secondary xylem is
A) Soil → Root hair cell wall → Cortex → Endodermis → Pericycle → Protoxylem → Metaxylem
B) Cortex → Root hair → Endodermis → Pericycle → Protoxylem → Metaxylem
C) Pericycle → Soil → Root hair → Cortex → Endodermis → Protoxylem → Metaxylem
D) Soil → Root hair cell wall → Cortex → Pericycle → Endodermis → Protoxylem → Metaxylem

39. Osmosis is the movement of
A) Solute particles from higher concentration to lower concentration
B) Solvent particles from higher water potential to lower water potential
C) Solute particles from higher concentration to lower concentration through a semipermeable membrane
D) Solvent particles from lower water potential to higher water potential

40. Which of the following is NOT a function of transpiration?
A) Excretion of minerals C) Uptake of water
B) Cooling of leaves D) Uptake of minerals

41. Which of the following wall of guard cells is thick?
A) Inner B) All the three C) Side wall D) Outer

42. Stomata will open, if there is accumulation of the following element in the guard cells
A) Magnesium B) Zinc C) Potassium D) Iron

43. Which valve allows blood to pass from heart to pulmonary artery:
A) Right Semilunar valve C) Left AV valve
B) Left Semilunar valve D) Right AV valve

44. The main reservoir of pro – inflammatory substance is:
A) Platelets B) Basophils C) Monocytes D) Lymphocytes

45. The 2nd most abundant cells in blood are:
A) RBCs B) Lymphocytes C) Platelets D) Neutrophils

46. Arterial depolarization is represented by:
A) P wave B) T wave C) QRS Complex D) PQRS

47. In the fetus, RBC's are produced in:
A) Liver B) Bone marrow C) Kidney D) Lymph nodes

48. Stomatal pore has wider opening in
A) Far red light B) Green light C) Blue light D) Yellow light

49. In cactus, the main photosynthetic organ is?
A) Stem B) Roots C) Leaves D) Homs

50. At very high temperature a hormone abscisic acid is released by which one of the following cells?
A) Guard cell B) Mesophyll cell C) Epidermal cell D) Xylem cell

51. Which one has thickest walls than the others:
A) Right Atria B) Right Ventricle C) Left Atria D) Left Ventricle

52. During symplastic pathway water moves through

A) Cytoplasm C) Plasmodesmata
B) Cell membrane D) All of these

53. If we remove the clotting proteins from plasma the remaining fluid is called________.
A) Water B) Antibodies C) Serum D) Lymphocytes

54. Just as blood is filtered by spleen the lymph is filtered by:
A) Spleen B) Tonsils C) Lymph nodes D) Liver

55. Which is not part of interstitial fluid
A) Dissolved Nutrients B) Haemoglobin C) Hormones D) Gases

56. Which system does not help in transport of materials in animals
A) Reproduction B) Respiration C) Excretion D) Circulation

57. Monocytes stay in the blood before entering tissue to become macrophages for
A) 10 – 20 hours B) 10 hours C) 15 hours D) 15 – 25 hours

58. Myocardial infarction is commonly known as
A) Stroke B) Heart Attack C) Hype tension D) Haemorrhage

59. Flow of lymph in lymphatic vessels is always towards the
A) Abdominal duct C) Femoral duct
B) Thoracic lymph duct D) Genital duct

60. In the intestine, the branches of lymph capillaries, within villi, are called
A) Lymph B) Tissue fluid C) Arteries D) Lacteals

61. Photosynthetic products from mesophyll and palisade layer of leaf, pass into sieve tubes through companion cells via
A) Vacuoles B) Cell walls C) Plasmodesmata D) All of these

62. Normal pH value of human blood is
A) 7.6 B) 7.8 C) 7.4 D) 7.2

63. Which have pigment in them
A) Leucocytes B) Erythrocytes C) Platelets D) Basophils

64. Casparian strips are present in:
A) Epidermis B) Endodermis C) Cortex D) Pericycle

65. Pathway of water consisting of interconnected protoplasts in root cells is called:
A) Apoplast B) Symplast C) Protoplast D) Tonoplast

66. Attraction between water molecules which hold the water in xylen tissue is called:
A) Tension B) Cohesion C) Inhibition D) Adhesion

67. Elastic fibers are absent in the walls of ------------- :
A) Aorta B) Veins C) Arteries D) Capillaries

68. Roots bear a dense cluster of tiny hair like structures which are extensions of:
A) Epidermal cells B) Pericycle cells C) Endodermal cells D) Cortical cells

69. Among the total transpiration taking place in plants, Cuticular Transpiration is about:
A) 1—2 % B) 5—7 % C) 50—60 % D) 90 %

70. Temperature that causes closure of Stomata is:
A) 30—40 ^{0}C B) 30—35 ^{0}C C) 25—35 ^{0}C D) 40—45 ^{0}C

71. Which of the following is not true of guard cells?
A) They are present in the epidermis of leaf.
B) They are connected with plasmodesmeta with other epidermal cells.
C) They contain chloroplasts.
D) They are kidney shaped.

72. Heart muscles contain myofibrils and myofilaments of:
A) Myosin & insulin B) Keratin & collagen C) Actin & insulin D) Myosin & actin

73. The right atrium receives deoxygenated blood from the body via:
A) Vena cava B) Aorta C) Pulmonary trunk D) Both A & B

74. Both erythrocytes and leucocytes are formed in the
A) Bone marrow B) Thymus C) Arterial wall D) Lymph node

75. Blood coagulation is prevented by
A) Thrombin B) Albumin C) Heparin D) Prothrombin

76. First pair of arteries that arise at the base of aorta in humans are:
A) Carotid arteries B) Subclavian arteries C) Coronary arteries D) Brachiocephalic artery

77. Root hair absorb water when
A)Soil solution is isotonic C) Transpiration is low

B) Salt concentration of soil is high D) Salt concentration of cell sap is high

78. Which is influenced by opening and closing of stomata
A) Active water absorption B) Passive water absorption C) Guttation D) Rate of growth

79. Which of the following is not a function of transpiration:
A) Cooling of leafs B) Uptake of water C) uptake of minerals D) Excretion of minerals

80. Trasnpiration rate of a dorsiventral leaf is:
A) higher on the lower surface C) Equal on the both the surfaces
B) Higher on the upper surface D) Dependent upon species

CHEMISTRY

81. Which of the following aldehydes contains α-carbon atom but no α -H atom?
A) Propionaldebyde C) Isobutyraldehyde
B) Benzaldehyde D) Formaldehyde

82. An alkene, C_7H_{14}, upon ozonolysis gave propanal and a ketone. The probable ketone is:
A) Acetone C) pentan-2-one
B) Ethyl methyl ketone D) pentan-3-one

83. Which of the following reagents can distinguish between acetaldehyde and benzaldehyde?
A) NH_2OH C) 2,4-DNPH
B) Fehling's solution D) NH_3

84. Which is the major product formed when acetone is heated with iodine and potassium hydroxide?
A) Iodoacetone B) Formic acid C) Iodoform D) acetophenone

85. Acetone reacts with HCN to form cyanohydrin. It is an example of:
A) Electrophilic addition C) Electrophilic substitution
B) Nucleophilic addition D) Nucleophilic substitution

86. Aldol product on heating with dil. acid undergoes:
A) Fragmentation C) Dehydration
B) Rearrangement D) Hydrogenation

87. Addition of alcohol in carbonyl compounds gives acetal, the geometry of acetal is:
A) Linear B) Tetrahedral C) Trigonal Planar D) Square planar

88. Which of the following regent will react with both aldehydes and ketones:
A) Grignard's reagent C) Tollen's reagent
B) Fehling's reagent D) Benedict's reagent

89. Which one may not be the general formula of aldehydes?
A) $C_nH_{2n+1}CHO$ B) $C_nH_{2n}O$ C) $C_nH_{2n+2}CO$ D) $C_nH_{2n}O_2$

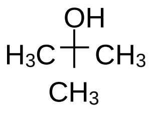
90. An alkaline solution containing Cu(II)-tartarate complex is:
A)Tollen's reagent C) Rochelle salt
B) Fehling's solution D) Nesseler's reagent

91. The nucleophilic addition reaction of carbonyl group are catalyzed by:
A) Salts C) Transition element
B) Acids or bases D) All of these

92. Ketones produced a wine red or orange red color on adding:
A) Fehling solution C) Tollen's solution
B) Alkaline sodium nitroprusside solution D) All of these

93. During esterification, water along with ester is formed. H-atom in water comes from:
A) Alcohol B) Carboxylic acid C) Catalyst D) May be from alcohol or acid

94. Compounds of the type R_3C-OH are referred to as ______ alcohols.
A) Secondary B) Primary C) Quaternary D) Tertiary

95. Which among the following compounds is most acidic in character?
A) $CH_3CH_2CH_2OH$ C) CH_3-CH_2-OH
B) CH_3-OH D)

$(CH_3)_3C{-}OH$

96. The product of intermolecular dehydration of an alcohol is an:
A) alkane B) alkene C) ether D) aldehyde

97. Oxidation of an alcohol group results in formation of a(an) ______ group.
A) aromatic B) carbonyl C) ether D) hydroxyl

98. The compound, recognized by its strong odor and used as a disinfectant is:
A) glycol B) methanol C) phenol D) petrol

99. When phenol acts as an acid, a (an) ______ ion is produced.
A) Oxonium B) benzyl C) phenyl D) phenoxide

100. Ethanol and methanol can be distinguished by:
A) Iodoform test B) Benedict's test C) Lucas test D) Tollen's test

101. Which alcohol will undergo elimination reaction to give alkene in the presence of acidic potassium dichromate?
A) Primary alcohol B) Tertiary alcohol C) Secondary alcohol D) All of above

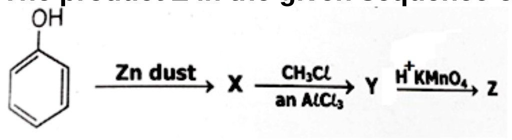
102. The hydrogenation of phenol in the presence of Raney's Ni gives:
A) Cyclohexane B) 1-hexanol C) n-hexane D) cyclohexanol

103. Which of the following compounds will not give a yellow ppt. with iodine and alkali?
A) Ethanal B) 1-Propanol C) Ethanol D) 2-Propanol

104. Ethyl alcohol exhibits acidic character on reacting it with:
A) Hydrogen chloride B) Sodium metal C) acetic acid D) acidic $K_2Cr_2O_7$

105. Which one of the following compounds will be most readily attacked by an electrophile?
A) Toluene B) Benzaldehyde C) Nitrobenzene D) Picric acid

106. The product Z in the given sequence of reactions is?



:

A) Toluene C) benzaldehyde
B) Benzoic acid D) 1,3,5-trimethyl benzene

107. Which of the following compound would not evolve CO_2 when treated with $NaHCO_3$ solution?
A) 2-propanol B) benzoic acid C) phenol D) Both A and C

108. Order of relative strength of phenol, acetic acid, water and ethanol is:
A) water < ethanol < phenol < acetic acid C) ethanol < phenol < water < acetic acid
B) phenol < water < ethanol < acetic acid D) ethanol < water < phenol < acetic acid

109. The least reactive compound towards nucleophilic addition reactions is:
A) Propanone B) Pentan-3-one C) Pentan-2-ene D) Pentanal

110. Carbolic acid is
A) Phenyl benzoate B) Phenol C) Salol D) Phenyl acetate

111. The reaction of Grignard reagent with formaldehyde followed by acidification gives.
A) An aldehyde C) a ketone
B) A carboxylic D) a primary alcohol

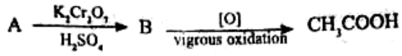
112. Phenol can be distinguished from ethyl alcohol by all of the following reagents except:
A) Na C) $FeCl_3$
B) Br_2/H_2O D) NaOH

113. When phenol is treated with an excess of bromine water, it gives
A) 2,4,6-tribromophenol C) 2, 4-dibromophenol
B) o-and p-bromophenol D) m-bromophenol

114. Absolute alcohol (100% alcohol) is prepared by distilling rectified spirits over
A) $Mg(OC_2H_5)_2$ C) CaO
B) Na D) Mg

115. Three moles of ethanol react with one mole of phosphorus tribromide to form 3 moles of bromoethane and one mole of X. Which of the following is X?
A) H_3PO_3 C) H_3PO_2
B) H_3PO_4 D) HPO_3

116.

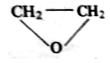


$$A \xrightarrow[H_2SO_4]{K_2Cr_2O_7} B \xrightarrow[\text{vigrous oxidation}]{[O]} CH_3COOH$$

Here, B is propanone; so A will be
A) Ethyl alcohol C) Isopropyl alcohol
B) n-propyl alcohol D) tertiary butyl alcohol

117. The alcohol, C_4H_9OH, when shaken with a mixture of anhydrous $ZnCl_2$ and HCl produced a product as an oil layer immediately. The alcohol is
A) $(CH_3)_2CHCH_2OH$ C) $(CH_3)_3COH$
B) $H_3CCH(OH)CH_2CH_3$ D) $H_3C(CH_2)_3OH$

118. Which one of the following compounds will react with Grignard reagent to yield a primary alcohol containing two more carbons?

A) CH_3CHO C) 

B) HCHO D) CH_3COCH_3

119. Ethanol and dimethyl ether form a pair of functional group isomers. The boiling point of ethanol is higher than that of dimethyl ether due to the presence of

A) H-bonding is dimethyl other C) H-bonding in ethanol

B) CH3 group in ethanol D) CH3 group in diethyl ether

120. Clemensen reduction of carbonyl compounds is carried out with?

A) $LiAlH_4$ in ether C) Zn-Hg and HCl

B) H_2 in the presence of Pd D) NH_2NH_2 and KOH

121. Ketones (R_1COR_2); when R_1=R_2=alkyl group, can be obtained in one step by

A) Hydrolysis of esters C) Oxidation of primary alcohols

B) Oxidation of secondary alcohols D) Reaction of acid halides and alcohols

122. On reacting with Grignard reagent acetone gives

A) 1° alcohol C) 2° alcohol

B) 3° alcohol D) none of these

123. Which of the following is incorrect?

A) Fehling solution is used in detection of glucose

B) $NaHSO_3$ is used in detection of carbonyl compounds

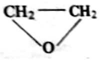
C) $FeCl_3$ is used in detection of phenols

D) Tollen's reagent is used in detection of unsaturation

124. Acetaldehyde gives orange colored precipitate on treatment with

A) 2, 4-DNPH C) NH_2OH

B) $NaHSO_3$ D) $NaHCO_3$

125. Reaction of  **with RMgX, Followed by hydrolysis will produce**

A) RCHOHR C) $RCHOHCH_3$

B) R_2CHCH_2OH D) RCH_2CH_2OH

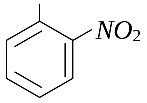
126. Enzyme maltase helps the hydrolysis of?

A) Starch to maltose C) Maltose to glucose

B) Glucose to ethyl alcohol D) Ethyl alcohol to carboxylic acid

127. Among the following the dissociation constant is highest for?

A) C_6H_5OH C) $CH_3C \equiv CH$

B) $C_6H_5CH_2OH$ D) 

128. For the reaction, $C_2H_5OH + HX \xrightarrow{ZnCl_2} C_2H_5X + H_2O$ the order of reactivity of HX is:

A) HI > HCl > HBr C) HI > HBr > HCl

B) HCl > HBr > HI D) HBr > HI > HCl

129. Which of the following upon ozononlysis produces only acetaldehyde?

A) Ethene C) 1-butene

B) 2-butene D) Isobutylene

130. Ketones are less reactive than aldehydes due to:

A) Steric hindrance C) both 'A' & 'B'

B) Electron donating groups D) None

131. Ethyl alcohol is prepared from ethylene by.

A) Permanganate oxidation C) Catalytic reduction

B) Absorbing in H_2SO_4 followed by hydrolysis D) Fermentation

132. Which is not the enzyme involved in the preparation of ethyl alcohol by fermentation of starch?

A) Diastase C) Maltase

B) Zymase D) Invertase

133. The alkaline hydrolysis of bromoethane gives alcohol as the product. The reagent and the condition used in the reaction may be?

A) Water at room temperature C) KOH in alcohol

B) Ethanol, Heat D) dil. NaOH, warm

134. A common industrial solvent is a mixture of propanone and n-pentylethanoate. Which reagent would have no effect on this solvent?

A) Na(s) B) NaOH(aq) C) $NaBH_4$ D) 2,4 DNPH

135. An acid without a carboxylic acid group is

A) picric acid C) Oxalic acid
B) adipic acid D) vinegar

136. The enolic form of acetone contains

A) 9 σ bonds, 1 π bond and 2 lone pairs C) 10 σ bonds, 1 π bond and 1 lone pairs
B) 8 σ bonds, 2 π bond and 2 lone pairs D) 9 σ bonds, 2 π bond and 2 lone pairs

137. Which one of the following undergoes reaction with 50% sodium hydroxide soln. to give the corresponding alcohol and acid?

A) Butanal C) Methanal
B) Phenol D) Benzoic acid

138. Silver mirror test is given by which of the following compounds?

A) Acetaldehyde C) Acetone
B) Benzophenone D) Benzyl alcohol

139. Iodoform can be prepared from all except?

A) Ethyl methyl ketone C) Isopropyl alcohol
B) 3-methyl-2-butanone D) Isobutyl alcohol

140. Reduction of $>C{=}O$ to $>CH_2$ can be carried out with

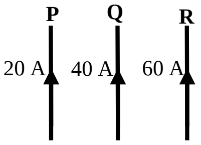
A) Na/C_2H_5OH C) $LiAlH_4$
B) Catalytic reduction D) Wolff-Kishner reduction

PHYSICS

141. The magnetic field lines due to a current in a straight wire are

A) Straight B) Parabolic C) Circular D) Elliptical

142. P,Q and R are long parallel straight wires in a air, carrying currents as shown. What is the direction of the resultant force on Q ?



A) To the left C) the right
B) perpendicular to this page D) remain at rest at all

143. Two infinitely long parallel wires carry equal current in same direction. The magnetic field at a mid point in between the two wires is

(A) Twice the magnetic field produced due to each of the wires
(B) Half of the magnetic field produced due to each of the wires
(C) Square of the magnetic field produced due to each of the wires
(D) Zero

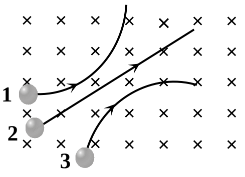
144. If an electron enters the magnetic field at right angle from left and $\vec{B}$ is into paper, electron will be deflected:

(A) Upward (B) Downward (C) No deflection (D) None of these

145. An electron continues to move in a straight line while passing through magnetic field. Choose the correct statement:

A) It is never possible
B) It is possible if B is perpendicular to direction of the electron
C) It is possible if B is parallel to direction of motion of electron
D) It is possible if B is 45° to the direction of motion of electron

146. Particles 1, 2 and 3 are moving perpendicular to a uniform magnetic field, then particle



A) 1 is positively charged and particle 3 is negatively charged
B) 1 is negatively charged and particle 3 is positively charged
C) 1 is negatively charged and particle 2 is neutral
D) 1 and 3 are positively charged and particle 2 is neutral

147. A beam of ions with velocity $2\times10^5\ m/s$ enters normally into a uniform magnetic field of $4\times10^{-2}\ tesla$. If the specific charge of the ion is $5\times10^7\ C/kg$, then the radius of the circular path described will be

(A) 0.10 *m* (B) 0.16 *m* (C) 0.20 *m* (D) 0.25 *m*

148. A strong magnetic field is applied on a stationary electron, then

(A) The electron moves in the direction of the field

(B) The electron moves in an opposite direction

(C) The electron remains stationary

(D) The electron starts spinning

149. A proton (mass $= 1.67\times10^{-27}\,kg$ and charge $= 1.6\times10^{-19}\,C$) enters perpendicular to a magnetic field of intensity 2 $weber\ /m^2$ with a velocity $3.4\times10^{7}\ m/\sec$. The acceleration of the proton should be

(A) $6.5\times10^{15}\ m/\sec^2$ (B) $6.5\times10^{13}\ m/\sec^2$

(C) $6.5\times10^{11}\ m/\sec^2$ (D) $6.5\times10^{9}\ m/\sec^2$

150. Consider a current carrying wire is passing through the centre of circle (perpendicular), a compass is placed along the circle. The compass needles will

A) Point towards the centre of circle C) Point tangent to the circle

B) Point away from the centre of circle D) None of the above

151. A long wire A carries a current of 10 *amp*. Another long wire *B*, which is parallel to *A* and separated by 0.1 *m* from *A*, carries a current of 5 *amp*. in the opposite direction to that in *A*. What is the magnitude and nature of the force experienced per unit length of *B*

[$\mu_0 = 4\pi\times10^{-7}$ *weber/amp – m*]

A) Repulsive force of $10^{-4}\,N/m$ C) Attractive force of $10^{-4}\,N/m$

B) Repulsive force of $2\pi\times10^{-5}\,N/m$ D) Attractive force of $2\pi\times10^{-5}\,N/m$

152. If a long copper rod carries a direct current, the magnetic field associated with the current will be

A) only inside the rod C) only outside the rod

B) both inside and outside the rod D) neither inside nor outside the rod

153. Which of the following is not affected by the magnetic field?

A) Stationary charge C) Moving charge

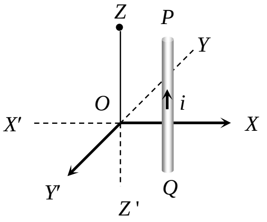
B) Current flowing in conductor D) None of these

154. The ratio of the specific charge (e/m) of the proton to that of an $\propto -particle$ is,

A) 1:4 C) 1:2

B) 4:1 D) 2:1

155. A vertical wire kept in *Z-X* plane carries a current from *Q* to *P* (see figure). The magnetic field due to current will have the direction at the origin *O* along



(A) OX

(B) OX'

(C) OY

(D) OY'

156. A long straight wire carries a current of $\pi\,amp$. The magnetic field due to it will be 5×10^{-5} *weber/m*^{2} at what distance from the wire [$\mu_o =$ permeability of air]

(A) $10^4\mu_o$ *metre* (B) $\frac{10^4}{\mu_o}$ *metre* (C) $10^6\mu_o$ *metre* (D) $\frac{10^6}{\mu_o}$ *metre*

157. Unit of magnetic permeability is

(A) *amp/metre* (B) *amp/*m^2 (C) *henry* (D) *henry/metre*

158. A charged particle of mass m and charge q travels on a circular path of radius r that is perpendicular to a magnetic field B. the time taken by the particle to complete one revolution is:

A) $\frac{2\pi m}{qB}$ B) $\frac{2\pi B}{qm}$ C) $\frac{2\pi rm}{2B}$ D) $\frac{2\pi r}{qB}$

159. A positive charge is moving upwards vertically it enters a magnetic field directed to the north. The force on the charge will be towards:

A) North B) South C) East D) West

160. An electric charge in uniform motion produces:

(A) An electric field only (C) A magnetic field only

(B) Both electric and magnetic field (D) No such field at all

161. The magnetic induction in air at a point 1*cm* away from a long wire that carries a current of 1*A*, will b

(A) $1\times10^{-5}T$ (B) $2\times10^{-5}T$ (C) $3\times10^{-5}T$ (D) $4\times10^{-5}T$

162. The vector sum of electric and magnetic force is:

(A) Lorentz force (B) Gravitational force (C)Centripetal force (D) None of these

163. Which of the following is correct?

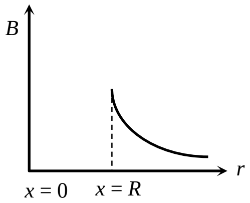
(A) 1 T = 10^3 G (B) 1 T = 10^4 G (C) 1 T = 10^{-4} G (D) None of these

164. A current of 0.1 *A* circulates around a coil of 100 turns and having a radius equal to 5*cm*. The magnetic field set up at the centre of the coil is ($\mu_0 = 4\pi\times10^{-7}$ *weber/amp-metre*)

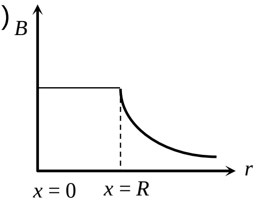
(A) 2×10^{-5} *Tesla* (B) 4×10^{-5} *Tesla* (C) $8\pi\times10^{-5}$ *Tesla* (D) $4\pi\times10^{-5}$ *Tesla*

165. A long thin hollow metallic cylinder of radius '*R*' has a current *i ampere*. The magnetic induction '*B*'- away from the axis at a distance *r* from the axis varies as shown in

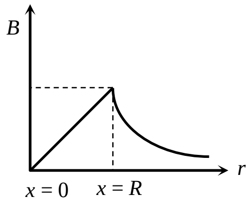
(A)



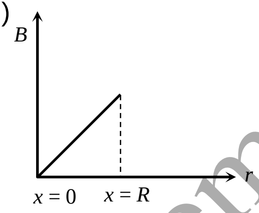
(B)



(C)



(D)



166. A charged particle moves with velocity *v* in a uniform magnetic field $\vec{B}$. The magnetic force experienced by the particle is

(A) Always zero

(B) Never zero

(C) Zero, if $\vec{B}$ and $\vec{v}$ are perpendicular

(D) Zero, if $\vec{B}$ and $\vec{v}$ are parallel

167. A 2 *MeV* proton is moving perpendicular to a uniform magnetic field of 2.5 *tesla*. The force on the proton is

(A) $2.5\times10^{-10}\,N$ (B) $7.6\times10^{-11}\,N$ (C) $2.5\times10^{-11}\,N$ (D) $7.6\times10^{-12}\,N$

168. A particle with $10^{-11}\,coulomb$ of charge and $10^{-7}\,kg$ mass is moving with a velocity of $10^{8}\,m/s$ along the *y*-axis. A uniform static magnetic field $B = 0.5\,Tesla$ is acting along the *x*-direction. The force on the particle is

(A) $5\times10^{-11}\,N$ along $\hat{i}$ (B) 5×10^{3} N along $\hat{k}$

(C) $5\times10^{-11}\,N$ along $-\hat{j}$ (D) $5\times10^{-4}\,N$ along $-\hat{k}$

169. An electron enters a region where magnetic (*B*) and electric (*E*) fields are mutually perpendicular to one another, then

(A) It will always move in the direction of *B*

(B) It will always move in the direction of *E*

(C) It always possess circular motion

(D) It can go undeflected also

170. A charge moving with velocity *v* in *X*-direction is subjected to a field of magnetic induction in the negative *X*-direction. As a result, the charge will

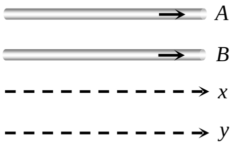
(A) Remain unaffected

(B) Start moving in a circular path *Y*-*Z* plane

(C) Retard along *X*-axis

(D) Move along a helical path around *X*-axis

171. *A* and *B* are two conductors carrying a current *i* in the same direction. *x* and *y* are two electron beams moving in the same direction



(A) There will be repulsion between *A* and *B* attraction between *x* and *y*

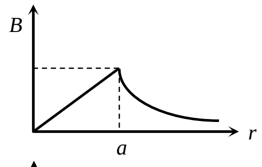
(B) There will be attraction between *A* and *B*, repulsion between *x* and *y*

(C) There will be repulsion between *A* and *B* and also *x* and *y*

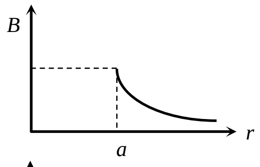
(D) There will be attraction between *A* and *B* and also *x* and *y*

172. The magnetic field due to a straight conductor of uniform cross section of radius *a* and carrying a steady current is represented by

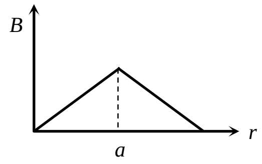
(A)



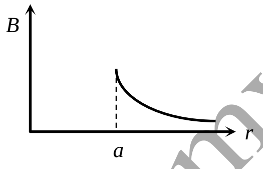
(B)



(C)



(D)



173. A proton and an electron both moving with the same velocity *v* enter into a region of magnetic field directed perpendicular to the velocity of the particles. They will now move in circular orbits such that

(A) Their time periods will be same

(B) The time period for proton will be higher

(C) The time period for electron will be higher

(D) Their orbital radii will be same

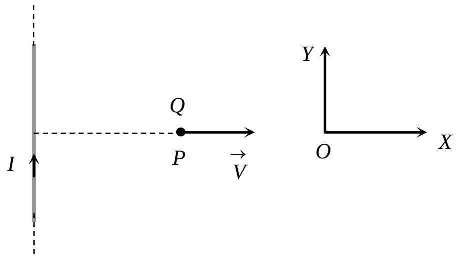
174. An electron (mass = 9×10^{-31}*kg.* Charge = 1.6×10^{-19}*C*) whose kinetic energy is 7.2×10^{-18} *joule* is moving in a circular orbit in a magnetic field of 9×10^{-5} *weber/m*^{2}. The radius of the orbit is

(A) 1.25 *cm* (B) 2.5 *cm* (C) 12.5 *cm* (D) 25.0 *cm*

175. An electron enters a region where electrostatic field is 20*N/C* and magnetic field is 5*T*. If electron passes undeflected through the region, then velocity of electron will be

(A) $0.25ms^{-1}$ (B) $2ms^{-1}$ (C) $4ms^{-1}$ (D) $8ms^{-1}$

176. A very long straight wire carries a current I. At the instant when a charge $+Q$ at point P has velocity $\vec{V}$, as shown, the force on the charge is



(A) Opposite to *OX* (B) Along *OX* (C) Opposite to *OY* (D) Along *OY*

177. The magnetic field of the conductor at distance 2r from the conductor carrying the same current I will be:

A) $\frac{B}{4}$ B) $\frac{B}{2}$ C) $2B$ D) $\frac{B}{\sqrt{2}}$

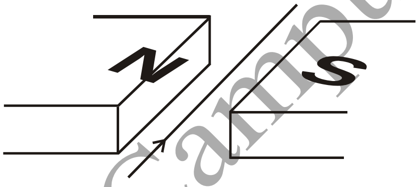
178. $\frac{e}{m}$ of neutron is:

A) One B) Infinite C) Zero D) 1.75 x 10^{10}

179. If direction of velocity of charge is along +x-axis and direction of magnetic force on it is along –y-axis , then direction of magnetic field is along:

A) +z-axis B) +y-axis C) –y-axis D) –z-axis

180. The diagram shows a wire, carrying a current I, placed between the poles of a magnet. In which direction does the force on the wire act?



(A) Downwards.
(B) Upwards.
(C) Towards the N pole of the magnet.
(D) Towards the S pole of the magnet.

ENGLISH

Choose the correct word words to complete each sentence.

181. His parents will _________ him when he shows them his report card.

A) curtail B) Reprimand C) accomplishment D) gloss

182. Never reject an idea, dream or goal because it will require hard work. Success _______comes without it.

A) Rarely B) stately C) prudently D) mischievously

183. Nasir's voice started to ______ when he talked about his dead father.

A) exemplify B) debacle C) quiver D) glitter

184. I ________to say that you did not gain admission to Harvard.

A) explode B) regret C) leash D) soar

SPOT THE ERROR: In the following sentences some segments of each sentence are underlined. Your task is to identify that underlined segment of the sentence, which contains the mistake that needs to be corrected. Fill the circle corresponding to that letter under the segment in the MCQ Response Form.

185. After our trip to the beach, school started back, and I was excited seeing my friend.
A B C D

186. The sun is shining through the clouds, so I think that we can go to swimming.
A B C D

187. Although my friends begged me, I chose not to go for the reunion.
A B C D

188. I don't remember ever being especially unhappy in class; but the oppressive weight of the knowledge of
A B C
a full day school ahead remained a characteristic sensation of my childhood.
D

189. So far I do not know how long I strayed up and down, increasingly fearful of being watching, summoning up my
A B C D
courage to take the plunge.

190. I could only see the tip, and the only thing that I could gain from that was to feel most certain than before that I
A B C
had scarlet fever.
D

In each of the following questions, four alternative sentences are given. Choose the CORRECT one and fill the circle corresponding to that letter in the MCQ Response Form.

191.

A) He decided that flying above the clouds were the most incredible experience he had ever had.
B) He decided that flying above the clouds was the most incredible experience he had ever has.
C) He decided that flying above the clouds was the most incredible experience he has ever had.
D) He decided that flying above the clouds was the most incredible experience he had ever had.

192.

A) Eat ice cream on a windy day can be messy experience if you have long and untamed hair.
B) Eating ice cream on a windy day can be messy experience if you have long and untamed hair.
C) Eating ice cream at a windy day can be messy experience if you have long and untamed hair.
D) Eating ice cream on a windy day can be messy experience if you had long and untamed hair.

193.

A) To live and let live is a way of life that can bring peace for the world.
B) To live and let to live is a way of life that can bring peace to the world..
C) To live and let live is a way of life that can bring peace to the world.
D) To live and let lives is a way of life that can bring peace to the world.

194.

A) Swimming in the ocean has been Aslam’s passion since he was five years old.
B) Swimming in the ocean has been Aslam’s passion for he was five years old.
C) Swimming in the ocean has been Aslam’s passion since he was five year old.
D) Swimming in the ocean has been Aslam passion since he was five years old.

195.

A) He could still knock up a half-century in the cricket-field.
B) He could still knock up a half-century on the cricket-field.
C) He could still knock off a half-century on the cricket-field.
D) He could still knock on a half-century on the cricket-field.

196.

A) She had left him with a calmness and a poise that accord well with his own inward emotions.
B) She had left him with calmness and poise that accorded well with his own inward emotions.
C) She had left him with a calmness and a poise that accords well with his own inward emotions.
D) She had left him with a calmness and a poise that accorded well with his own inward emotions.

197.

A) If I were a co-operative stores and family hotel combined, I might be able to oblige you. Being only a chemist hamper me.
B) If I were a co-operative stores and family hotel combined, I might be able to oblige you. Being only a chemist hampers me.
C) If I were a co-operative stores and family hotel combined, I may be able to oblige you. Being only a chemist hampers me.
D) If I were a co-operative stores and family hotel combined, I might be able to oblige you. Being only a chemist hampering me.

198.

A) I turned up my overcoat collar, settled my sack comfortably across my shoulders, and strode off towards the little square glow of the coffee-stall.
B) I turned up my overcoat collar, settled my sack comfortably across my shoulders, and strode on towards the little square glow of the coffee-stall.
C) I turned up my overcoat collar, settle my sack comfortably across my shoulders, and strode off towards the little square glow of the coffee-stall.
D) I turned over my overcoat collar, settled my sack comfortably across my shoulders, and strode off towards the little square glow of the coffee-stall.

In each of the following questions, four alternative meanings of a word are given. You have to select the NEAREST CORRECT MEANING of the given word and fill the appropriate Circle on the MCQ Response Form.

199. QUOTATION
A) trepidation B) Adornment C) efficacy D) dictum

200. REINFORCE
A) camouflage B) deplore C) invigorate D) emaciate

201. SWARMED UP
A) impetuous B) potpourri C) turbulent D) perceiving

202. STERNLY
A) grimly B) cunningly C) pensively D) violently

203. RESONANT

A) demure B) reticent C) mum D) sonorous

In each of the following questions, four alternative words are given. You have to select the option OPPOSITE in meaning to the given word and fill the appropriate Circle on the MCQ Response Form.

204. REPROACHFUL
A) compunctious B) indolent C) commendable D) execrable

205. RIOT
A) commotion B) composure C) scathe D) acrid